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FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

WILEY, REIN & FIELDING

1776 K STREET, N.W.
WASHINGTON, D.C. 20006
(202) 429-7000

DAVID E. HILLIARD
(202) 429-7058

FACSIMILE
(202) 429-7049
TELEX 248349 WYRN UR

April 28, 1994

Mr. William F. Caton
Acting Secretary
Federal Communications Commission
1919 M Street, N.W., Room 222
Washington, D.C. 20006
STOP CODE: 1170

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Re: Ex Parte Communication in PR Docket No. 93-61

Dear Mr. Caton:

Pursuant to Section 1.1206(a)(2) of the Commission's Rules, notice is hereby given of an *ex parte* communication regarding the above-referenced proceeding. An original and one copy of this letter and its attachments are being filed with the Secretary's Office.

This morning, Louis H.M. Jandrell. Vice President -- Design and Development, Pinpoint Communications, Inc. ("Pinpoint"), and David E. Hilliard and Michael A. Lewis of Wiley, Rein & Fielding, Pinpoint's counsel, met with the following Private Radio Bureau ("Bureau") officials: F. Ronald Netro, Engineering Assistant to the Chief of the Bureau; Edward R. Jacobs, Deputy Chief of the Land Mobile and Microwave Division (the "Division"); Rosalind K. Allen, Chief of the Rules Branch (the "Branch") of the Division; and Martin D. Liebman, Deputy Chief of the Branch.

Messrs. Jandrell, Hilliard, and Lewis discussed Pinpoint's positions regarding spectrum allocation and licensing issues expressed in its pleadings filed in this proceeding.

Attached hereto is a copy of the documents made available during the meeting.

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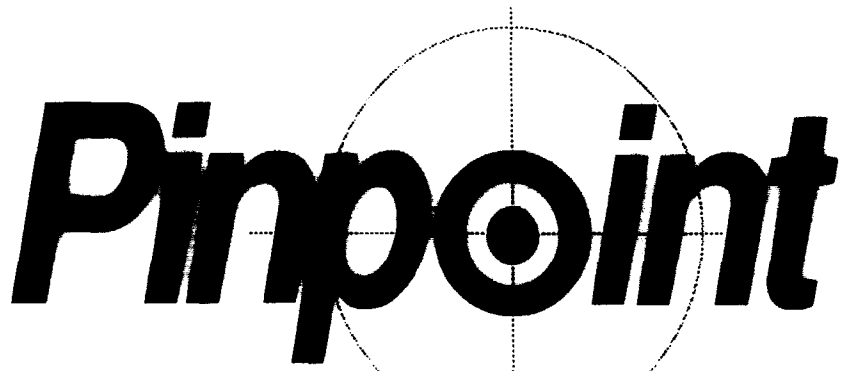
If there are any questions regarding this matter, please contact the undersigned.

Respectfully submitted,

David E. Hilliard

David E. Hilliard
Attorney for Pinpoint Communications, Inc.

Attachments
cc: F. Ronald Netro
Edward R. Jacobs
Rosalind K. Allen
Martin D. Liebman



COMMUNICATIONS, INC.

Ex Parte Presentation
PR Docket No. 93-61
April 28, 1994

Wide-Area AVM Serves Important Public Interest Objectives

- Intelligent Vehicle-Highway Systems (IVHS)
  - Traffic monitoring and control
  - Emergency roadside assistance
  - In-vehicle information
- Fleet management
- Stolen vehicle recovery
- Advantages over other vehicle location systems, such as far superior urban coverage where demand is greatest

Pinpoint Communications, Inc.
Ex Parte Presentation - PR Docket No. 93-61

Pinpoint
COMMUNICATIONS, INC.

The Wide-Area AVM Marketplace Should be Governed by Competition

- Record reveals a diversity of approaches
- Final rules should accommodate this diversity to the extent practicable
- Competition should decide which systems best serve the public interest

Pinpoint's ARRAY™ System

- Spectrally efficient automatic vehicle monitoring
  - 12-16 MHz spectrum requirements in 902-928 MHz band
  - Compatible with other wide-area systems through time-sharing
  - Can co-exist with other users of the band (ISM, government, local-area AVM, amateurs, Part 15)
- High-capacity, accurate vehicle location
  - 1,000+ vehicles per second
  - Raw 30-foot accuracy, 95% of time
- High-speed data-messaging
  - Data on same signal as vehicle location function
  - 300 kbps
- Proven in Washington experimental system

The Entire 902-928 MHz Band Should Be Made Available to Wide-Area Systems

- Intentions of wide-area systems to meet demand for AVM require access to entire 26 MHz of 902-928 MHz band
- Wide-area systems are compatible with local-area systems
  - Wide-area AVM operators have indicated that wide-are systems can operate sufficiently well in the presence of local-area systems
  - Local-area systems have not indicated that wide-are systems are a potential interference problem
- Wide-area systems are compatible with Part 15 devices
  - Part 15 devices should continue to be allowed to operate throughout 902-928 MHz band consistent with obligations of noninterference
  - Wide-area AVM industry supports adoption of an objective standard of "harmful interference" in the 902-928 MHz band from Part 15 devices
    - Objective standard would remove uncertainty in cases of interference
    - Both wide-area system and Part 15 device developers would have benchmark for measuring compatibility

A Band Plan Is Available That Would Accommodate the Diversity of Wide-Area AVM Proponents

- Pinpoint modification of basic Teletrac proposal
- 912-928 MHz sub-band available to wide-area AVM systems on time-sharing basis and co-primary with local-area AVM systems
- 902-912 MHz sub-band available to wide-area AVM systems an a primary basis, generally superior to local-area systems

912-928 MHz Sub-Band

- Wide-area and local-area systems share on a co-primary basis
- All financially and technically qualified wide-area AVM applicants filing within a filing window would negotiate a time-sharing arrangement from common, equivalent bargaining positions
  - Negotiated arrangements may include elements of frequency division, CDMA, statistical spatial diversity, wideband forward links, and other characteristics of particular qualifying designs
  - In the absence of a successful negotiation, simple default round-robin arrangement would take effect
  - Plan has the potential for future entrants through reopening of the window
- Sub-band would give local-area AVM systems opportunities for a least two, and as many as three, 6 MHz channels, as desired by several local-area system proponents
- Wide-area systems would have to tolerate Part 15 devices up to a certain interference ceiling

902-912 MHz Sub-Band

- Commission could license this sub-band in one of several ways:
  - frequency division
    - *e.g.*, 902-906 MHz, 906-910 MHz, 910-912 MHz channelization
    - would seem to accommodate, for example, MobileVision, Teletrac, and Southwestern Bell
    - narrowband forward links could be located within the system's channel or at 927.5 - 928 MHz
  - statistical spatial diversity (Teletrac ex parte proposal)
  - time-sharing
- Any grant of exclusivity in the face of mutually exclusive may require spectrum auctions under recent Communications Act amendments
- Existing local-area systems should be grandfathered and required to move only in instances of actual interference that are not otherwise reconciled
- Local-area AVM systems should be permitted to attenuate side-band energy below 912 MHz on a primary basis subject to strict power limits

Incidental Operations Could Be Accommodated in Other Spectrum Allocations

- Voice operations
  - Emergency basis only in 902-928 MHz band
  - Otherwise, in cellular, SMRS, PCS, or other private radio or common carrier band
- Data operations
  - On same signal as vehicle location pulses (Pinpoint)
  - In same channel as vehicle location pulses (Southwestern Bell) subject to any sharing mechanism in place
  - In narrowband forward link

The Commission Should Not Drop the Proposed Allocation of 902-928 MHz to AVM in Favor of Enhancing the Position of Part 15 Devices

- Part 15 industry asks the Commission to overturn long-standing and sound spectrum allocation policies
- Consideration of other spectrum for wide-area AVM would delay implementation of wide-area AVM by several years right at the time several operators are ready to implement their networks
- Commission has recently made available over 40 MHz of unlicensed PCS spectrum that could be used for Part 15 devices in addition to the hundreds of MHz that could be used to support the functions such devices serve, on both a licensed and unlicensed basis

The Commission Should Allocate the 902-928 MHz Band to Wide-Area AVM Expeditiously

- As the Commission recognizes, wide-area AVM will bring a host of important services to the American public and will be central to the introduction of IVHS
- The industry has been under a cloud of uncertainty for almost two years
- Any substantial further delay may weaken the present opportunities to establish a development of a highly competitive environment for the provision of AVM services, in our nation's urban centers in particular

PINPOINT

WASHINGTON, DC

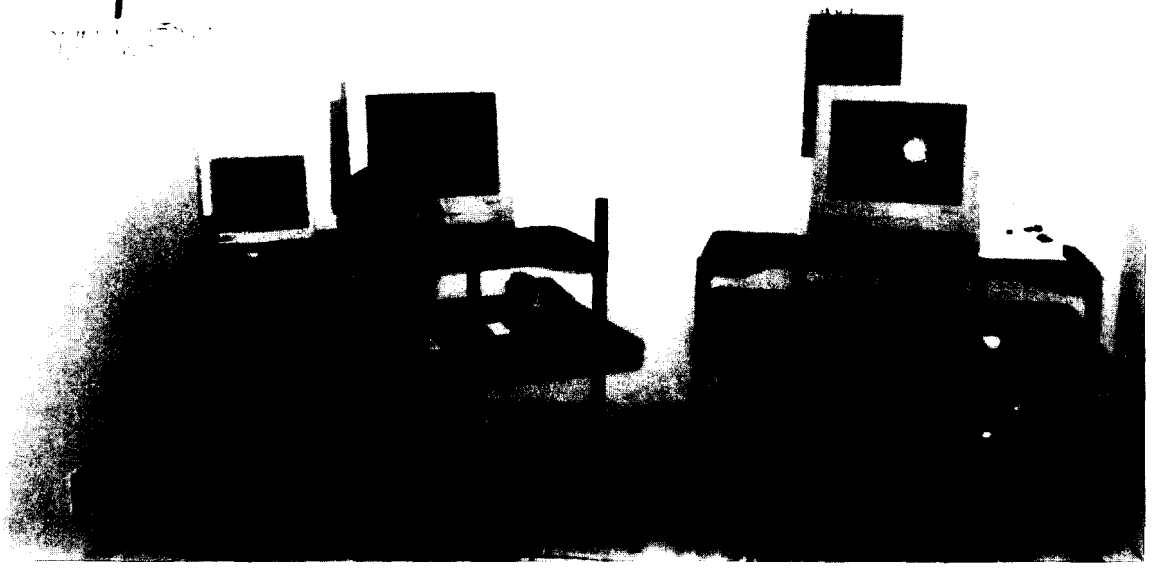
EXPERIMENTAL SYSTEM

FOR

AUTOMATIC VEHICLE MONITORING

1993-1994

Pinpoint



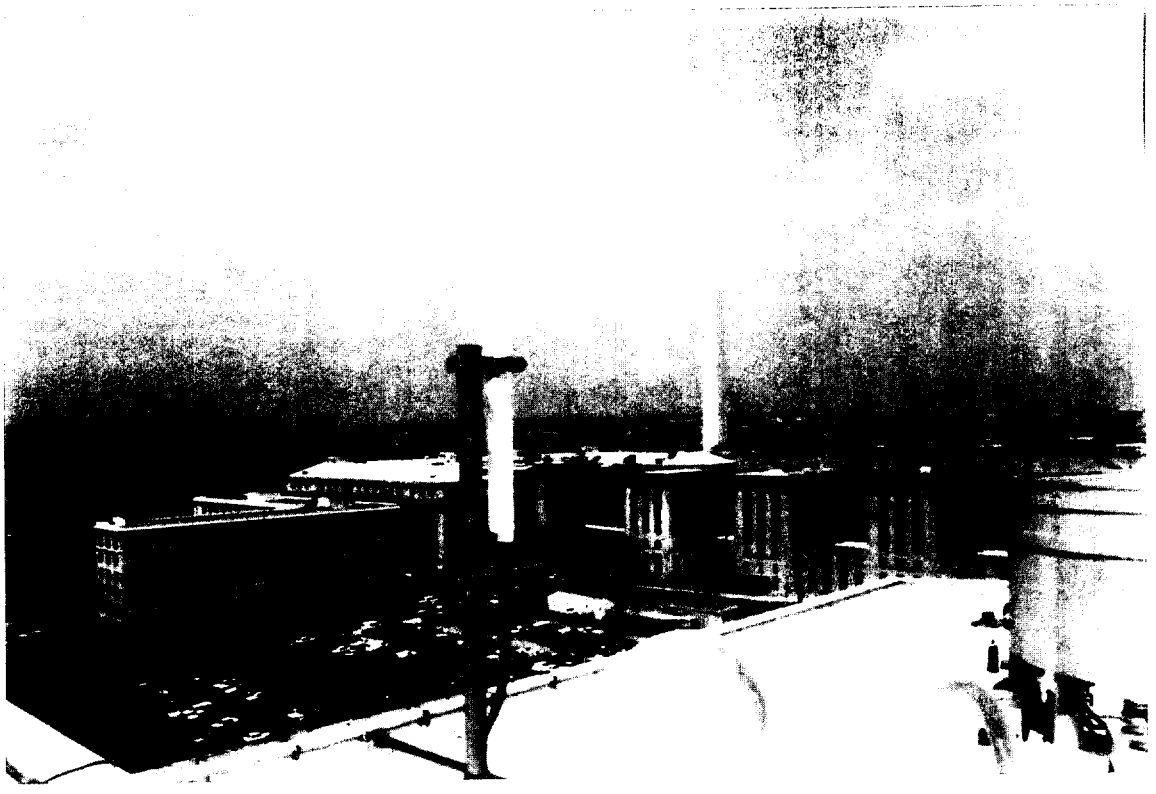
Dispatching Center (left) and Flight Display (right): Data Communications "Datacomm" Capable

Experimental System Network Control Center

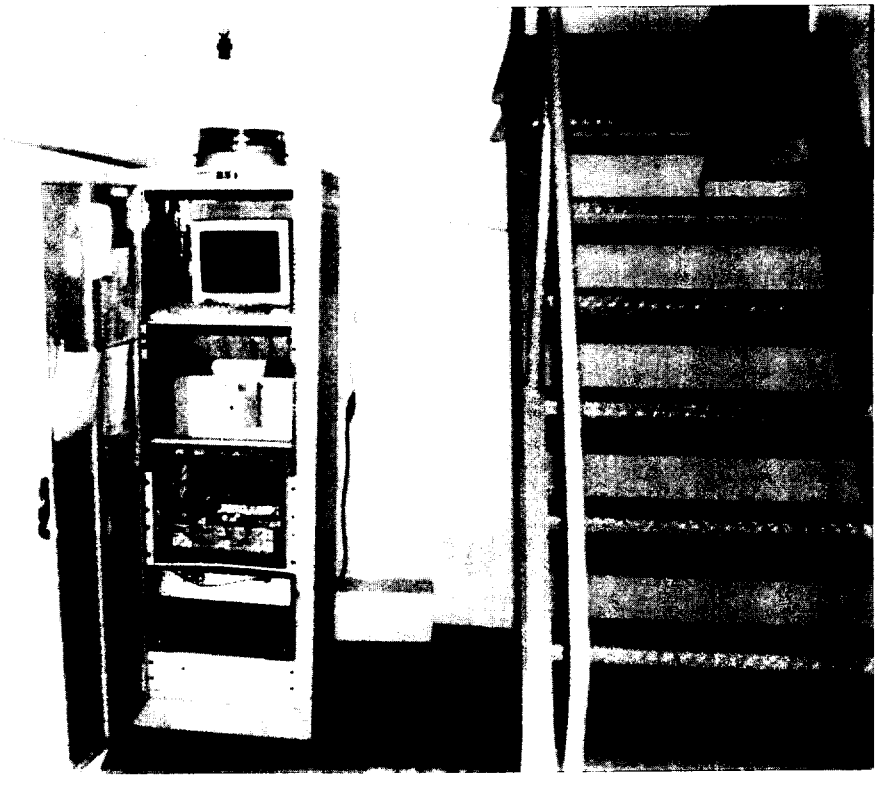
↑ Diagnostic CPU

↑ Navigation CPU

↑ Data Communications CPU



Portal



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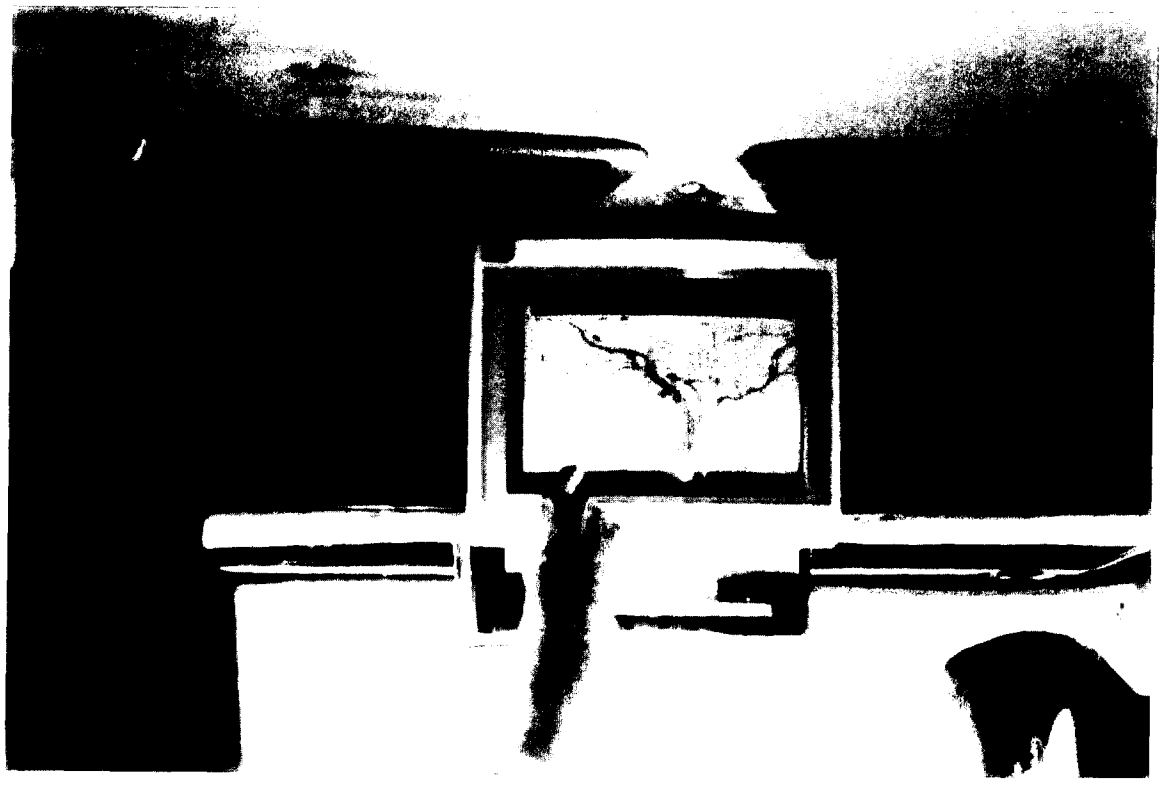
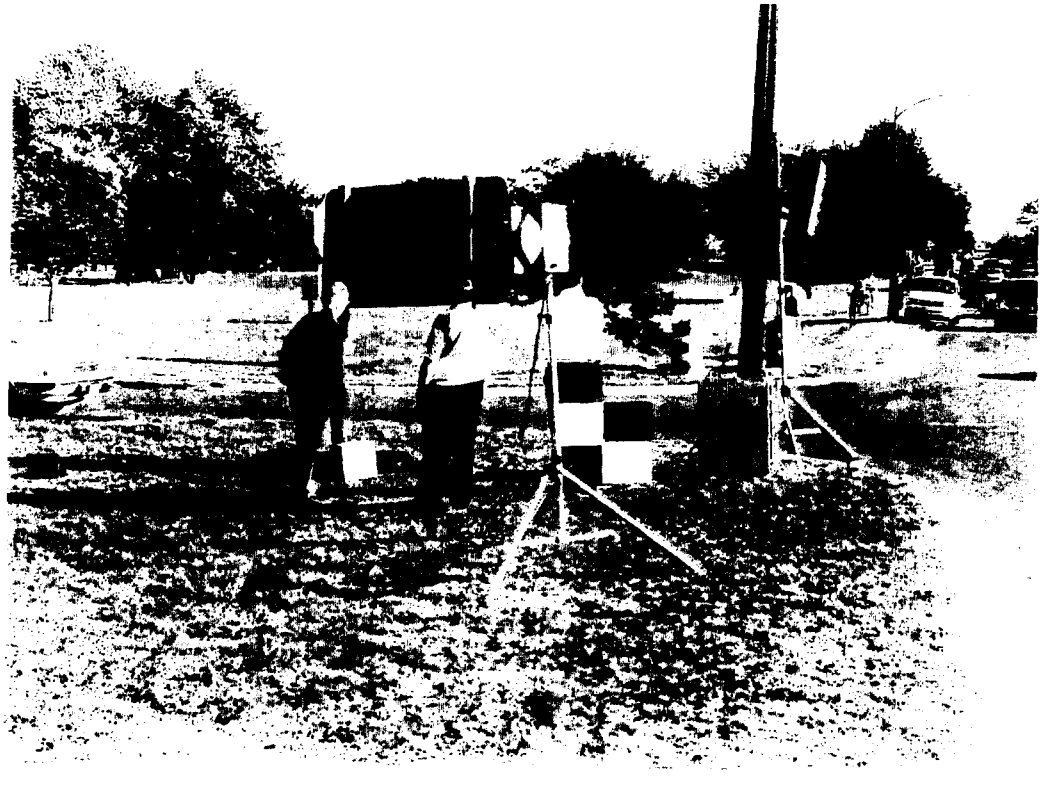


Mobile Application Terminal
(MAP) - TRUCK UNIT

Mobile Demonstration Unit

Views of Ameritech Local
Area AVM Compatibility Test



Pinpoint

Park Central VII
12750 Merit Drive
Suite 800, L.B. 20
Dallas, Texas 75251
214-789-8900
Fax 214-789-8989

What Is IVHS?

IVHS

Intelligent Vehicle-Highway Systems. Complementary technologies encompassing information processing, communications, control, and electronics combined to improve transportation in the United States.

IVHS America

IVHS America is a non-profit educational and scientific association that plans, promotes and coordinates the development of intelligent vehicle-highway systems in the United States. The association is a federal advisory committee to the U.S. Department of Transportation.

Membership

Pinpoint is a private member company of IVHS America, along with other transportation, communications and electronics industry members. Other members include local, state and federal government agencies, academic institutions and related associations.

Action

The 1991 Intermodal Surface Transportation Efficiency Act (ISTEA) was enacted to "develop a national intermodal transportation system that is economically sound, provides the foundation for the Nation to compete in the global economy, and will move people and goods in an energy-efficient manner." IVHS is the only way to achieve this goal.

IVHS Goals

- Improved Safety
- Reduced Congestion
- Increased and Higher Quality Mobility
- Reduced Environmental Impact
- Improved Energy Efficiency
- A viable U.S. IVHS Industry

IVHS Areas

- Advanced Traffic Management Systems (ATMS)
- Advanced Traveler Information Systems (ATIS)
- Advanced Vehicle Control Systems (AVCS)
- Commercial Vehicle Operations (CVO)
- Advanced Public Transportation Systems (APTS)

Making it Happen

Building more roads and expanding existing roads is only part of the answer. We must use the roads we have more effectively. The flight to suburbia has reached its maximum commutable tolerance. The environment and air quality continue to suffer from clogged roadways. Public transportation, which is a viable alternative, remains largely unattractive to drivers and often has a limited metropolitan reach. Commercial vehicles that carry this country's goods are being slowed down by traffic congestion, weigh stations, tolls, excessive paperwork and are unable to communicate with a home base most of the time.

Technology Designed With IVHS in Mind

Pinpoint has the only functional communications solution at the price point needed to make IVHS a widespread reality. Pinpoint's founders designed the ARRAY™ network with IVHS in mind.

Advanced Traffic Management Systems (ATMS)

ATMS is the building block of all IVHS functional areas. It will collect, use and disseminate real-time data on congested arterial streets and expressways and will alert transit operators of alternative routes. Dynamic traffic control systems will respond to changing traffic conditions across different jurisdictions and types of roads by routing drivers around delays where possible. Rapid detection of response to traffic incidents will be especially effective in reducing congestion on expressways.

Existing Technology in Use Today

Loop Detectors
Closed Circuit TV
Signpost
Global Positioning System (GPS)
Narrowband Two-Way Radio

Drawbacks to Existing Technology

Existing Approaches Impractical

- Cost and infrastructure investment impractical
- Existing two-way communications options too costly and performance and capacity are limited
- Installation effort mammoth

Pinpoint's Solution

- Integrated vehicle location and communications function over a single network
- Real-time traffic monitoring
- Two-way, high-speed data communications
- Integrated Automatic Vehicle Location
- Responsive Demand Management
- High subscriber capacity

Advanced Traveler Information Systems (ATIS)

ATIS provides information that assists travelers in reaching a desired destination via private vehicle, public transportation or a combination of the two. On-board navigation systems are an ATIS building block. Information will include locations of incidents, weather and road conditions, optimal routes, recommended speeds and lane restrictions.

Existing Technology in Use Today

Communication	One-way paging Cellular Specialized Mobile Radio (SMR)
Location/Navigation	Global Positioning System (GPS) Dead Reckoning On-board Navigational Computer

Drawbacks to Existing Technology

Existing Approaches Impractical

- Transmission is not fast enough, nor is there adequate bandwidth
- Far too expensive — the driver won't pay
- Locating function unreliable for urban IVHS applications
- Cost of air time and vehicle equipment too high
- There is no integrated location function
- The architecture is inefficient for IVHS requirements
- There is simply not enough system capacity to handle the messaging requirements of ATIS.

Pinpoint's Solution

- Integrated vehicle location and communications function over a single network
- Integrated AVL function that penetrates urban areas
- Navigation without GPS or signpost
- Two-way, digital data communications that is spectrum efficient
- High-volume message handling capability
- High-speed data transmission
- Fully automated emergency alert

Commercial Vehicle Operations (CVO)

Commercial Vehicle Operations are intended to improve the safety and efficiency of commercial vehicle and fleet operations. CVO, as part of IVHS, will increase driver safety, expedite deliveries, improve operation efficiency, improve incident response and decrease operational costs.

Existing Technology in Use Today

Communication	One-way Paging Cellular Specialized Mobile Radio (SMR) Low Earth Orbiting Satellites (LEO)
Location/Navigation	Global Positioning System (GPS) Dead Reckoning On-board Navigational Computer

Drawbacks to Existing Technology

Existing Approaches Impractical

- Use of LEO and other satellite communications is very expensive and is unreliable in urban areas
- Cellular, SMR are costly and inefficient for widespread CVO
- Satellite-based/GPS services are unreliable in urban areas
- In-vehicle equipment and other network components are expensive with satellite-based service

Pinpoint's Solution

- Integrated vehicle location and communications function over a single network
- Efficient use of spectrum
- High capacity, low cost
- Accurate vehicle location in severe urban multipath environments
- Low-cost, in-vehicle equipment

Advanced Public Transportation Systems (APTS)

APTS applies advanced electronic technologies to the deployment and operation of high-occupancy, shared-ride vehicles such as conventional buses or rail service. Technologies from ATMS and ATIS in the area of communications, navigation and advanced information systems are applied to APTS. Developments in ATMS and ATIS will improve mass transportation services and will be used to inform travelers in real time of alternative schedules, costs or the most advantageous routing, for example.

Existing Technology in Use Today	
Communication	One-way Paging Cellular Specialized Mobile Radio (SMR)
Location/Navigation	Global Positioning System (GPS) Dead Reckoning On-board Navigational Computer
Drawbacks to Existing Technology	
Existing Approaches Impractical	• Communications and location functions via satellite are unreliable in urban areas • High cost • Communications and location infrastructure is costly and arduous to implement • Spectrum and capacity limitations
Pinpoint's Solution	• Integrated vehicle location and communications function over single network • Accurate location in urban areas • Two-way, real-time, cost-effective data communications and location monitoring • Driver assistance and security functions • Fleet monitoring information – Integration of computer dispatch, customer information and security functions

Pinpoint

Park Central VII
12750 Merit Drive
Suite 800, L.B. 20
Dallas, Texas 75251
214-789-8900
Fax 214-789-8989

CORPORATE PROFILE

Forcing change in the vehicle location and mobile data communications industry, Pinpoint™ Communications has invested more than three years of intensive research and development to create the first intelligent mobile data network. An intelligent mobile data network integrates automatic vehicle location with mobile data communications and offer revolutionary price performance over existing mobile technologies. Intelligent mobile data networks will dramatically change the way individuals communicate and manage business in a mobile environment. Pinpoint™ holds authorizations for automatic vehicle location sytems in seventeen of the largest metropolitan markets.

A pioneer in the mobile communications industry, Pinpoint recognizes the need for low-cost mobile data communications is basic and broad and is sparked by widespread commercial and consumer demand. The company's team of visionaries set out to fuel the changes required to meet the basic market needs and demands.

Pinpoint is based in Dallas and is a privately-held corporation heavily endowed by private technology investors that share in the vision of a nationwide intelligent mobile data network and the benefits it will provide in increased mobile management efficiency and elevated public safety. Pinpoint employs a technical staff of more than 30 engineers drawn from the land mobile communications and defense industries working to bring its ARRAY™ system to the public.

Pinpoint's ARRAY™ network overcomes previous price performance barriers and sets new standards for myriad of mobile applications. It achieves this by integrating the functions of mobile vehicle location and message delivery into a single, low-cost mobile communication hardware solution -- the TransModem™.

Pinpoint envisions applications that will enhance and further expand capabilities in the area of fleet management, vehicle security, emergency communications, mobile two-way messaging, mobile point-of-sale terminals and "smart car" systems that include traffic, direction and routing information all at the driver's fingertips in support of the Intelligent Vehicle Highway System.